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JOURNAL OF THE CHEMICAL SOCIETY

The scale and cost of present day publication make it necessary to ask authors to co-operate with the Society to the full. To facilitate this the Society will publish a sequence of notices to authors within these covers. It is intended to deal with all major aspects of the preparation, submission, content, and handling of articles intended for the *Journal*. Careful attention to these notices will help authors to have their work published more easily and rapidly.

NOTICES TO AUTHORS—No. 1

The instructions as laid down in this Notice are being revised by the Primary Journals Committee at the present time, and a new Notice will be issued shortly.

NOTICES TO AUTHORS—No. 2/1968

Presentation of Papers

Every latitude, consistent with brevity, in the form and style of papers is permitted, and no pattern for either is prescribed. Certain elements are, however, common to all papers, and these are considered.

Organization of Material

Title.—The choice of a title for a paper is of the greatest importance, since it is from the title that the important key-words used in information retrieval are taken. Not only should the title clearly and accurately indicate the content of that paper but also it should be as specific as the content and emphasis of the work permits. Brevity in a title, though desirable, should be balanced against its accuracy and usefulness.

Abbreviations, symbols, and formulae are generally not permitted, and it is usual to spell out terms where necessary.

Reference to the preceding part of a series must be made as the reference (numbered 1) to the title in the form: ' The Chemistry of Vitamin B_{12}. Part VIII.[1] Controlled Potential Reduction of Vitamin B_{12a}.' [Reference to a preceding part in the references is in the form: Part VII, H. A. O. Hill, B. E. Mann, J. M. Pratt, and R. J. P. Williams, *J. Chem. Soc.* (*A*), 1968, 564. If the page number is unknown because the paper has still to be accepted, or is in the press, the paper number should be given.]

Summary.—Every paper for the *Journal* must be accompanied by a summary (50—250 words) setting out briefly and clearly the objects and results of the work. The summary should give a reader a clear idea of what the work has achieved and should be *independent* of the main text. This last point is of particular importance in connection with the names of compounds which, although they may be accompanied by a number which refers to a displayed formula in the body of the text, must be comprehensible without reference to this formula. Thus,

> Apetalactone, a new triterpene lactone isolated from *Calophyllum apetalum* Willd. has been shown to be 4,28-dihydroxy-3,4-secofriedelan-3-oic acid lactone (IIa).
>
> or
>
> Reaction of sodium hydride with ω-hydroxyalkyltriphenylphosphonium salts $Ph_3P^+[CH_2]_nOH\ X^-$ (I) has been investigated. The salt (I; $n = 1$, X = 1) gave triphenylphosphine and formaldehyde. The salt (I; $n = 2$, X = 1) gave triphenylphosphine oxide and ethylene. Similar reactions were carried out with ω-hydroxyalkyltriphenylarsonium (XIV) and ω-hydroxyalkyldimethylphenylammonium (XV) salts.

The summary should concern only the main subject of the work and its main conclusions; details of an involved argument or synthesis should not be included and, although classes of compounds prepared or discussed should be given rather than a list of compounds, key compounds in the work should be referred to.

Introduction.—This should give clearly and briefly, with relevant references, both the nature of the problem under investigation and its background.

Results and Discussion.—It is usual for the results to be presented first, and for them to be followed by a discussion of their significance. Only relevant results should be presented, and figures, tables, and equations should be used only for purposes of clarity and brevity. Data must not be reproduced in more than one form, *e.g.* in both figures and tables.

Experimental Section.—Descriptions of experiments should be given in detail sufficient to enable experienced experimental workers to repeat them; the degree of purity of materials should be given, as should the relative quantities used. Descriptions of established procedures are unnecessary. Standard techniques and methods used throughout the work should be stated at the beginning of the section. Apparatus should be described only if it is non-standard; commercially available instruments are referred to by their stock numbers (*e.g.* Perkin-Elmer 137 or Unicam SP 500 spectrophotometers). The accuracy of primary measurements should be stated. Unexpected hazards encountered during the experimental work should be noted. The detailed treatment of the Experimental section is dealt with in a forthcoming Notice to Authors.

Acknowledgements.—Contributors, other than co-authors, are acknowledged in a separate paragraph at the end of the paper; acknowledgements should be as brief as possible. Titles, Mr., Mrs., Miss, Dr., Professor, *etc.*, are given; degrees are not given. Organizations which operate on a commercial basis are not acknowledged.

Bibliographic References.—These are given on a separate sheet at the end of the manuscript and are referred to in the text by superior roman numerals. They must be distinguished from footnotes which are given at the bottom of the page to which they refer; they are referred to by an asterisk (*), dagger (†), *etc.* Bibliographic references and footnotes are the subject of Notice No. 3.

General Detail

Type Size.—It should be noted that since the Experimental section and the results are printed in smaller type than the theoretical part, division between the two should be clear-cut and frequent alternation is not advisable.

Brevity.—Because of the large volume of work submitted for publication, brevity in the presentation of papers is essential and, for this reason, certain tendencies are discouraged; these are as follows:

(*a*) Unnecessary division of work into separate parts of a series. Papers are in no way discouraged solely on grounds of length.
(*b*) Submission of fragmentary work when this can be included in a larger communication.
(*c*) Historical introductory paragraphs in cases when a simple statement of the accepted present position suffices.
(*d*) Undue elaboration of hypotheses.
(*e*) Over-detailed and verbose exposition of ideas.
(*f*) Excessive use of diagrams, for example, straight-line plots that can be adequately expressed as an equation together with, if necessary, a table of deviations.
(*g*) Duplication of data as between text, tables, and figures, *etc.*

(*h*) Details of the preparation of simple derivatives such as esters, ethers, semicarbazones, *etc.*, and slight variations of essentially the same technique. (Unless the conditions are critical, quantities are superfluous, and only an indication of reagents and/or conditions is required.)

Spelling.—Standard English spelling is used (*Oxford English Dictionary*), although latitude with respect to alternative spellings for certain words is allowed. Where one form or the other of a particular spelling is adopted it should be used consistently throughout a paper.

Punctuation.—Although punctuation follows standard English practice, the following conventions are observed:

(*a*) A comma is placed before ' and ' or ' or ' in a series such as ' oxygen, sulphur, and selenium ' or ' $\lambda_{max.}$ 237, 295, and 343 nm.'

(*b*) Parentheses, square brackets, and braces are used, as necessary, in that order, *i.e.* {[( )]}.

(*c*) When a word is followed by a punctuation mark the parenthetical phrase must be inserted before the latter, *e.g.* ' m.p. 234° (decomp.),' and not ' m.p. 234°, (decomp.)'.

(*d*) A colon is used to separate a ratio, as in 1 : 20 —not a solidus 1/20.

(*e*) Parenthetical expressions of the same physical quantity in different units are separated by a comma (3·9 g, 0·1 mole) (30 ml, 1 mole); expressions of different physical quantities are separated by a semicolon (2·9N; 30 ml) (*d* 0·88; 8 ml).

Hyphenation.—Hyphens are used for two purposes: to divide and to compound.

Division. It is common practice to divide words, particularly when in a sequence, when one part is common to several of the words; in such cases, the hyphen, representing the point of attachment to the common part, is always inserted, *e.g.* ' the chloro-, bromo-, and fluoro-naphthacenes,' ' the *o-*, *m-*, or *p*-nitrotoluenes,' or ' the oxo-naphthalenes and -naphthacenes.' It is not good practice, however, to detach both a common prefix and a common suffix in a series, *e.g.* ' the dihydroxy- naphthalene- and phenanthrene-diones,' since confusion can arise.

' Sections ' of class names such as diazo-ketone, alkyl-diamine, epoxy-nitro-sulphone, *etc.*, are linked by hyphens.

It is also Society usage to insert a hyphen after a prefix which ends in a vowel or y; the hydroxy-group, the aza-function, the carboxy-compounds, the nitro-derivatives, but the methyl group (note that hydroxy, acetoxy, carboxy, ethoxy, and methoxy are used and not hydroxyl, acetoxyl, carboxyl, ethoxyl, and methoxyl).

It is customary to separate a pair of the same letter when these letters (in the same fount) would not naturally fall together, *e.g.* butyl-lithium, iodo-octane.

Compounding. A hyphen is often necessary when words are compounded to form a single modifying adjective to precede the noun being modified, thus: ' a melting-point determination ' or ' a free-radical chain mechanism.' A hyphen is not needed when adverbs are compounded, as in ' an electrically heated oven,' or for two-word chemical names such as ' nitric acid solution.'

Miscellaneous uses of hyphens. Hyphens are used to set apart numbers, configurational letters, Greek letters, and italicized prefixes: 1,2,5-trimethylcyclohexane, D-*gluco*-hexose, *s*-trinitrobenzene, β-chlorophenethylbenzene, tri-μ-carbonyl-bis(tricarbonyliron), and 3-methylpent-*trans*-2-ene.

Use of Italics.—As described below, italics are indicated in a typescript by single underlining. Particular attention should be paid to the following uses.

(*a*) Foreign words and phrases and Latin abbreviations are given in italics: *e.g.*, *in toto*, *in vivo*, *ca.*, *cf.*, *i.e.*, *etc.*

(*b*) In the names of chemical compounds or radicals italics are used for prefixes (other than numerals or symbols) when they define the position of named substituents, or when they define stereoisomers: other prefixes are printed in roman. (*Note:* Initial capital letters are not to be used with italic prefixes or single-letter prefixes: full points are not to be associated with letter prefixes.)

o-, *m-*, and *p*-nitrotoluenes, but *ortho-*, *meta-*, and *para*-compounds (*o-*, *m-*, and *p-* are used only with specific names; *ortho-*, *meta-*, and *para-* are used with classes), *s*-trinitrobenzene, *NN*-dimethylaniline, *trans-* and *cis*-hexane-1,2-diol, *gem-* and *vic*-diols, benzil *anti*-oxime, 3-*O*-methyl-L-*glycero*-tetrulose.

At the beginning of a sentence the first roman letter after the prefix is capitalized: ' D-*glycero*-D-*gluco*-Heptose was subjected . . . ' and ' β-*p*-Tolylchalcone gave . . . '

(*c*) The scientific names of genera, species, and varieties are italicized.

(*d*) In references to periodicals their names or abbreviations are set in italics.

Note: Greek letters are not italicized, and should not therefore be underlined in typescripts.

Headings.—(*a*) Main sections (Experimental, Discussion, *etc.*): side-heading, small capitals, no final fullstop.

(*b*) Main side-heading: italics, initial capital letter for each noun and adjective, final fullstop and dash.

(*c*) Subsidiary side-heading: italics, first initial capital only, final fullstop but no dash.

(*d*) Further subdivision: by italic (*a*), (*b*), *etc.* (no following fullstop), and finally (i), (ii), *etc.* If (a), (b), *etc.* are used in front of a subsidiary side-heading, then for contrast these letters are not italicized.

Letters and prefixes which are ordinarily printed in italics are transferred for contrast into roman type in italicized phrases (see example below, where *O*-alkyl becomes O-*alkyl*).

Physicochemical symbols, however, remain in their prescribed form, and numerals and Greek letters are not italicized.

Examples:

EXPERIMENTAL

Preparation of Aliphatic Aldoximes and Ketoximes. —Acetoxime O-*alkyl ethers.* (*a*) Acetoxime (100 g) was dissolved . . .

Density (*d*) *of the Alcohol at* 295 K.—The series of aliphatic alcohols . . .

Note: In the above examples it should be noted that the type of print required to indicate italics, capitals, small capitals, *etc.* is shown by underlining; this convention must be strictly adhered to, *i.e.*

Single underlining for *italic* type
Double underlining for SMALL CAPITALS
Treble underlining for ORDINARY CAPITALS
Wavy underlining for **bold black** type

NOTICES TO AUTHORS—No. 3/1968

Bibliographic References and Footnotes

A clear distinction is made between bibliographic references and footnotes. The latter are used to present material which, if included in the body of the text, would disrupt the flow of the argument but which is, nevertheless, of importance in qualifying or amplifying the textual material. Such footnotes are referred to with the following symbols: *, †, ‡, §, ¶, ‖, *etc.* [*Note:* Since an asterisk is used to indicate the author to whom correspondence should be addressed, its use early on in a paper is not advised; a dagger (†) is preferred.]

Bibliographic References.—Reference to the source of statements in the text is made by use of *superior numerals* at the appropriate place. The references themselves are given as footnotes at the bottom of the corresponding page in the final printed text. It is thus *essential* that bibliographic references are numbered in the order in which they will appear.

When citation of a paper is repeated the numeral previously given to that reference is to be used also at the second citation; the footnote is not repeated.

The position of the superior numeral should be chosen with care, particularly when it does not follow an author's name. If placed adjacent to punctuation, the numeral should normally be placed after the punctuation mark, *e.g.* 'This compound was shown to be the dienone,[3] which . . . '. It may be necessary to modify this rule, however, to avoid confusion, thus: 'In this way the method was found to be suitable for lead[2], tin[3], bismuth[4], and mercury[5].'

Particular care is necessary where a reference number is likely to be confused with a superscript numeral indicating a power index: '. . . which gave a value of 2·3 cm^3 . . . ' should be written as '. . . which gave a value[3] of 2·3 cm' or '. . . which gave a value of 2·3 cm (ref. 3)'.

Since it is usually difficult to print a table in a given position in the text, references within the table are best dealt with by taking the individual references into the printed footnotes to the tables and using a new reference number sequence therein. Should the references cited in the tables appear much earlier in the text, these earlier reference numbers may be used.

Journals. Journal titles must be abbreviated to the forms listed in Notice 4 of this series. The main principles which underlie these abbreviations are: (i) clarity to a chemist; (ii) a fullstop after each abbreviated word, but not after words in full; (iii) English and Latin adjectives have initial capital letters, other adjectives do not.

Books. Titles of books are cited in quotation marks, in upright letters, and the author(s), title, publisher, town, date (or edition, if more than one has been published), and page number (if required) must be given in that order:

C. J. M. Stirling, 'Radicals in Organic Chemistry,' Oldbourne Press, London, 1965, p. 69.

T. J. Suen, in 'Polymer Processes,' ed. C. E. Schildknecht, Interscience, New York, 1956, vol. X, p. 295.

Patents. Patents should be indicated in the form: B.P. 367,450, 367,455-7. U.S.P. 1,171,230. G.P. 436,112-4. Jap.P. 20,101. Dates are indicated thus: B.P. 666,776/1956. Patents which are applied for must always be given a year, *e.g.* B.P. Appl. 102/1968.

Reports and Bulletins, etc.

R. A. Allen, D. B. Smith, and J. E. Hiscott, 'Radioisotope Data,' UKAEA Research Group Report AERE-R 2938, H.M.S.O., London, 1961.

'Collected Papers on Methods of Analysis for Uranium and Thorium,' Geological Survey Bulletin 1006, U.S. Government Printing Office, Washington D.C., 1954.

Material presented at meetings.

N. N. Greenwood, Abstracts, Anniversary Meeting of the Chemical Society, Glasgow, 1965, C1.

N. S. Anderson and D. A. Rees, in 'Proceedings of the Vth International Seaweed Symposium,' ed. E. G. Young and J. L. McLachlan, Pergamon Press, Oxford, 1966, p. 405.

Theses.

A. D. Mount, Ph.D. Thesis, University of London, 1967.

Reference to unpublished material. For material presented at a meeting, congress, or before a society, *etc.*, but not published, the following form is used:

[1] A. R. Jones, presented in part at the XXth Congress of the International Union of Chemistry, Paris, September, 1960.

For material accepted for publication, but not yet published, the following form is used:

[2] A. R. Jones, *J. Amer. Chem. Soc.*, in the press.

If the paper has been submitted to the Society, the paper number should be given:

[3] A. R. Jones, *J. Chem. Soc.* (*A*), in the press (8/556).

For material submitted for publication but not yet accepted the following form is used:

[4] A. R. Jones, submitted for publication in *Angew. Chem.*

For personal communications the following form is used:

[5] G. B. Ball, personal communication. (*Note:* the form, G. B. Ball, private communication, is inappropriate.)

If material is to be published but has yet to be submitted the following form is used:

[6] Unpublished data.

Names.—The names and initials of all authors are always given in the reference footnote; they must not be replaced by the phrase *et al.* This does not prevent some, or all, of the names being mentioned at their first citation in the cursive text: initials are not necessary in the text.

For Chinese and Spanish authors all names should be given as in the original, since the patronymic is not always given last in these languages. If co-authors are to be collectively cited, as in 'Smith and his co-workers' or 'Smith *et al.*,' the latter form is inappropriate unless the individual name 'Smith' appears first among the authors named in the original.

Composite References.—Whenever possible, composite references should be used rather than a series of individual references. The style for composite references is as follows:

[1] A. B. Jones, *J. Chem. Soc.* (*A*), 1967, 234.

[2] A. B. Jones, *J. Chem. Soc.* (*A*), 1966, 123; 1967, 234.

[3] A. B. Jones, *J. Chem. Soc.* (*A*), 1966, 123; *J. Amer. Chem. Soc.*, 1956, **78**, 1234.

[4] A. B. Jones, *J. Chem. Soc.*, 1956, 234; A. B. Jones and C. D. Brown, *J. Chem. Soc.* (*B*), 1967, 234, 1077; 1968, 599.

[5] A. B. Jones, *J. Amer. Chem. Soc.*, 1956, **78**, 1234; A. B. Jones and C. D. Brown, *ibid.*, 1957, **79**, 567; A. B. Jones and E. F. Green, *ibid.*, p. 999.

If only one paper from a composite reference is required for citation later, then two numbers may be assigned to the first citation (*e.g.* Jones [1,2]); alternatively, long composite references may be divided by letters, *e.g.*:

(*a*) A. B. Jones, *J. Chem. Soc.* (*A*), 1954, 467; (*b*) A. B. Jones and C. D. Brown, *J. Chem. Soc.* (*B*), 1967, 234.

A. B. Jones, *J. Chem. Soc.* (*A*), (*a*) 1953, 267; (*b*) 1954, 1742; (*c*) *etc.*

A composite reference may cite a previous reference in the form:

[12] A. B. Jones, *J. Chem. Soc.*, 1956, 234; C. D. Brown, ref. 5.

(*Note: ibid.* is used only within a given reference and not to refer from one reference number to another: the abbreviated title for the journal should be repeated for separate reference numbers.)

Idem, loc. cit., and *op. cit.* are not used in references.

Abbreviations of Journal Titles.—Abbreviations for journal titles are constructed on the following general principles:

(*a*) When the full title consists of a single word it is not abbreviated: *Nature, Experientia, Tetrahedron.*

(*b*) In other cases the title or words selected from it are abbreviated as far as is consistent with the general principles:

(i) The abbreviated title should still enable the reader or librarian to identify the journal with ease; it should be readily expansible into the original or into full words near to the original. Accordingly, many words are unsuitable for abbreviation: *Acta, Bergvesen, Brewing, Cercetari, Dansk, Finishing, Folyoirat, Food, Istanbul, Sinica.*

(ii) The same word, if abbreviated, is always abbreviated in the same way, irrespective of the full title of the journal in which the word appears.

(iii) Nouns and adjectives derived directly from them receive the same abbreviation; initial capital letters are used for nouns, and small (lower case) initial letters for adjectives (unless they form the first word of the abbreviated title), except that for English and Latin titles adjectives are also given initial capital letters. Examples: Chemie *Chem.*, chemische(n) *chem.*, Chemistry or chemical *Chem.*, Chimie *Chim.*, chimique *chim.*, Chimie or chimica *Chim.*, Belgique *Belg.*, belges *belg.*

(iv) Related words not strictly covered by clause (iii) are differentiated. Examples: Chemistry and chemical *Chem.*, but Chemists in full; Engineering (adjective and noun) *Eng.*, but Engineers in full.

(v) Special sources of possible confusion require special treatment. Examples: *Ind.* for Industry and industrial, but India(n) in full; *Anal.* for Analele, *Analyt.* for Analytical, *Ann.* for Annals, Annales, Annalen, Annali, or Annual, but the full words for Anales, Analyst, and Annuaire.

(*c*) 'The', 'a', 'of', and 'and', as well as their equivalents in other languages, are omitted, except for rare cases where they seem essential for clarity, as in *Chem. and Ind.* (Chemistry and Industry, not Chemical Industry or Industrial Chemistry).

(*d*) All abbreviations are followed by a fullstop (full point); full words in references do not require to be followed by a fullstop.

(*e*) Names of countries are added, without punctuation, when they form part of the full title, as in *J. Chem. Soc. Japan* (Journal of the Chemical Society of Japan) or *Bull. Soc. chim. France* (Bulletin de la Societe chimique de France; the 'France' may not be omitted here as the list contains two other *Bull. Soc. chim.* as well as *Bull. Soc. Chim. biol.*). The country of origin is added in parentheses when needed to avoid confusion, as in *Ann. Chim.* (*France*) (Annales de Chimie) and *Ann. Chim.* (*Italy*) (Annali di Chimica), and for some titles of Japanese and translations from Russian journals, as in *Pharm. Bull.* (*Japan*) and *J. Gen. Chem.* (*U.S.S.R.*).

(*f*) The following long-established extreme abbreviations are retained: *Ber.* (since 1945 this journal has been superseded by *Chem. Ber.*); *Compt. rend.*; *Gazzetta*; *Annalen.*

NOTICES TO AUTHORS—No. 4/1968

List of Abbreviations for Periodicals most commonly found in Chemical Papers

The following list is compiled from those journals which are received in the Chemical Society Library. Since journal titles and their abbreviations are printed in italics, they must be underlined in the manuscript.

Accounts Chem. Res.
Acta Acad. Aboensis, Math. Phys.
Acta Biochim. Biophys. Acad. Sci. Hung.
Acta Biochim. Iran.
Acta Biochim. Polon.
Acta Chem. Scand.
Acta Chim. Acad. Sci. Hung.
Acta Cryst.
Acta Metallurgica
Acta Phys. Acad. Sci. Hung.
Acta Phys. et Chem. Szeged.
Acta Polytech. Scand. (Chem.)
Acta Vitaminol.
Adv. Alicyclic Chem.
Adv. Analyt. Chem. Instrumen.
Adv. Appl. Microbiol.
Adv. Carbohydrate Chem.
Adv. Catalysis
Adv. Chem. Eng.
Adv. Chem. Phys.
Adv. Clin. Chem.
Adv. Colloid Interface Sci.
Adv. Enzymol.
Adv. Fluorine Chem.
Adv. Food Res.
Adv. Free-Radical Chem.
Adv. Heterocyclic Chem.
Adv. Inorg. Chem. Radiochem.
Adv. Lipid Res.
Adv. Macromol. Chem.
Adv. Magn. Resonance
Adv. Org. Chem.
Adv. Organometallic Chem.
Adv. Pest Control Res.
Adv. Petrol. Chem.
Adv. Photochem.
Adv. Phys.
Adv. Phys. Org. Chem.
Adv. Protein Chem.
Adv. Quantum Chem.
Adv. Struct. Res. Diffraction Methods
Advancement Sci.
Afinidad
Agric. and Biol. Chem. (Japan)
Agric. Chem.
Agrokém. és Talajtan
Allg. prakt. Chem.
Ambix
Amer. Ceram. Soc. Bull.
Amer. Dyestuff Reporter
Amer. Inst. Chem. Engineers J.
Amer. J. Pharm
Amer. J. Sci.
Amer. Perfumer
Anais Acad. brasil. Cienc.
Anais Assoc. brasil. Quim.
Anal. Sti., Univ. "Al. I. Cuza" Iasi. Sect. Ic
Anales Asoc. quim. argentina
Anales Bromatol.
Anales de Quim.
Analyst
Analyt. Biochem.
Analyt. Chem.
Analyt. Chim. Acta
Analyt. Letters
Angew. Chem.
Angew. Chem. Internat. Edn.
Angew. makromol. Chem.
Ann. Acad. Sci. Fennicae
Ann. Chim. (France)
Ann. Chim. (Italy)
Ann. Endocrinol.
Ann. Fals. et Expertise chim.
Ann. Inst. Pasteur
Ann. New York Acad. Sci.
Ann. pharm. franç.
Ann. Physik
Ann. Physique
Ann. Report Fac. Pharm., Kanazawa Univ.
Ann. Report Inst. Seaweed Res.
Ann. Report ITSUU Lab.
Ann. Report Sankyo Res. Lab.
Ann. Reports Medicin. Chem.
Ann. Rev. Biochem.
Ann. Rev. Microbiol.
Ann. Rev. N.M.R. Spectroscopy
Ann. Rev. Phys. Chem.
Ann. Rev. Plant Physiol.
Ann. Soc. sci. Bruxelles
Ann. Stazione chim.-agrar. sper. Roma
Ann. Surveys Organometallic Chem.
Ann. Univ. M. Curie-Sklodowska, Sect. AA
Ann. Univ. Sci. Budapest, Sect. Chim.
Annalen
Appl. Spectroscopy
Arch. Biochem. Biophys.
Arch. Pharm.
Arch. Sci.
Arkiv. Fysik
Arkiv Kemi
Armyan. khim. Zhur.
Arzneim.-Forsch.
Atti Accad. naz. Lincei, Rend. Classe Sci. fis. mat. nat.
Austral. J. Biol. Sci.
Austral. J. Chem.
Austral. J. Phys.
Azerb. khim. Zhur.

Ber. Bunsengesellschaft Phys. Chem.
Berg- u. hüttenmänn. Montash. montan. Hochschule Leoben
Biochemistry
Biochemistry (U.S.S.R.)
Biochem. Biophys. Res. Comm.
Biochem. J.
Biochem. Pharmacol.
Biochem. Prep.
Biochem. Soc. Symp.
Biochim. appl.
Biochim. Biol. sper.
Biochim. Biophys. Acta
Biofizika
Biokhimiya
Biol. Rev. Camb. Phil. Soc.
Biopolymers
Biotechnol. and Bioeng.
Bol. Inst. Quim. agric. (Brazil)
Bol. Inst. Quim. Univ. nac. auton. Mexico
Bol. Soc. Chilena Quim.
Bol. Soc. quim. Peru
Boll. sci. Fac. Chim. ind. Bologna
Boll. Soc. ital. Biol. sper.
Bolyu-Kagaku
Brennstoff-Chem.
Brit. Bull. Spectroscopy
Brit. Chem. Eng.
Brit. Chemist
Brit. Corrosion J.
Brit. J. Pharmacol.
Bul. Inst. Politeh. Iasi
Bull. Acad. polon. Sci., Sér. Sci. chim.
Bull. Acad. Sci., U.S.S.R.
Bull. Chem. Soc. Japan
Bull. Inst. Chem., Acad. Sinica
Bull. Inst. Chem. Res., Kyoto Univ.
Bull. Inst. Nuclear Sci. "Boris Kidrich"
Bull. sci., Conseil Acad. R.S.F., Yougoslavie
Bull. Soc. chim. belges
Bull. Soc. chim. Beograd
Bull. Soc. Chim. biol.
Bull. Soc. chim. France
Bull. Soc. roy. Sci. Liège

Canad. Chem. Processing
Canad. J. Biochem.
Canad. J. Chem.
Canad. J. Chem. Eng.
Canad. J. Pharm. Sci.
Canad. J. Phys.
Canad. Spectroscopy
Carbohydrate Res.
Carbon
Catalysis Rev.
Cellulose Chem. Technol.
Cereal Chem.
Cesk. Farm.
Chem. Age
Chem. analit.
Chem. and Ind.
Chem. and Pharm. Bull. (Japan)
Chem. and Phys. Carbon
Chem. and Phys. Lipids
Chem. Ber.
Chem. Comm.
Chem. Engineer
Chem. Eng.
Chem. Eng. (Japan)
Chem. Eng. News
Chem. Eng. Progr.
Chem. Eng. Progr., Monographs
Chem. Eng. Progr., Symp.
Chem. Eng. Sci.
Chem. Erde
Chem. Heterocyclic Compounds
Chem. High Polymers (Japan)
Chem. in Britain
Chem. in Canada
Chem. Ind. (Düsseldorf)
Chem. Ind. Internat.
Chem.-Ing.-Tech.
Chem. listy
Chem. Natural Compounds
Chem. Oil and Gas, Romania
Chem. Phys. Letters
Chem. Process Eng.
Chem. Processing
Chem. Processing (S. Africa)
Chem. Processing (U.S.A.)
Chem. prümysl
Chem. Rev.
Chem. Soc. Special Publ.
Chem. Stosowana
Chem. Tech. (Berlin)
Chem. Week
Chem. Weekblad
Chem.-Ztg.
Chem. Zvesti
Chemist-Analyst
Chemist and Druggist
Chemistry (Quart. Chinese Chem. Soc., Formosa)
Chim. analyt.
Chimia (Switz.)
Chimica e Industria
Chimie et Industrie
Chimika Chronika
Chromatographia
Chromatog. Rev.
Ciencia
Clinical Biochem.
Clinical Chem.
Clinica Chim. Acta
Coke and Chemistry (U.S.S.R.)
Coll. Czech. Chem. Comm.
Colloid J. (U.S.S.R.)
Combustion and Flame
Comm. Fac. Sci. Univ. Ankara
Compt. rend.
Compt. rend. Acad. bulg. Sci.
Compt. rend. Soc. Biol.
Compt. rend. Soc. Phys. Hist. nat. Genève
Compt. rend. Trav. Lab. Carlsberg
Co-ordination Chem. Rev.
Corrosion
Corrosion Sci.
Croat. Chem. Acta
Current Sci.

Dansk Tidsskr. Farm.
Dechema Monograph.
Deut. Farb.-Z.
Deut. Lebensm.-Rundschau
Developments Appl. Spectroscopy
Discuss. Faraday Soc.
Diss. Abs.
Doklady Akad. Nauk Armyan. S.S.R.
Doklady Akad. Nauk Azerb. S.S.R.
Doklady Akad. Nauk S.S.S.R.
Dopovidi Akad. Nauk Ukrain. R.S.R. Ser. B.
Double-Liaison

Educ. in Chem.
Electroanalyt. Chem.
Electrochem. Technol.
Electrochim. Acta
Elektrokhimiya
Endeavour
Enzymologia
Erdöl u. Kohle
Ernährungsforschung
European J. Biochem.
European J. Steroids
European Polymer J.
Experientia

Fed. Proc.
Ferment. i spirt. Prom.
Fette, Seifen, Anstrichm.
Finska Kemistsamfundets Medd.
Fiz.-khim. Mekh. Materialov
Fiz. Metall. i Metallov.
Fluorine Chem. Rev.
Food
Food Manuf.
Food Technol.
Fortschr. Arzneim.
Fortschr. Chem. Forsch.
Fortschr. Chem. org. Naturstoffe
Fortschr. Hochpolym.-Forsch.
Fuel

Gazzetta
General Cytochem. Methods
Geokhimiya
Gidrokhim. Mat.
Giorn. Microbiol.
Glass Technol.
Grasas y Aceites

Halogen Chem.
Helv. Chim. Acta
Helv. Phys. Acta
High Energy Chem.

Ind. Chim.
Ind. chim. belge
Ind. and Eng. Chem.
Ind. and Eng. Chem. (Fundamentals)
Ind. and Eng. Chem. (Process Design)
Ind. and Eng. Chem. (Product Res. and Development)
Ind. Finishing
Ind. Lab.
Indian J. Appl. Chem.
Indian J. Biochem.
Indian J. Chem.
Indian J. Pure Appl. Phys.
Industria y Química
Ing. chim. (Bruxelles)
Inorg. Chem.
Inorg. Chim. Acta
Inorg. Chim. Acta, Rev.
Inorg. Materials
Inorg. Nuclear Chem. Letters
Inorg. Synth.
Inst. Internat. Chim. Solvay Conseil Chim.
Internat. Chem. Eng.
Internat. J. Appl. Radiation Isotopes
Internat. J. Quantum Chem.
Internat. J. Quantum Chem., Symp.
Internat. J. Radiation Biol.
Internat. Sugar J.
Internat. Z. Vitaminforsch.
Intra-Sci. Chem. Reports
Ion Exchange
Israel J. Chem.
Israel J. Technol.
Ital. J. Biochem.
Izvest. Akad. Nauk Kazakh. S.S.R., Ser. khim.
Izvest. Akad. Nauk Latv. S.S.R., Ser. khim.
Izvest. Akad. Nauk S.S.S.R., Neorg. Materialy
Izvest. Akad. Nauk S.S.S.R., Ser. khim.
Izvest. sibirsk. Otdel. Akad. Nauk, Ser. khim. Nauk

Japan Analyst
Japan Chem. Quart.
Jap. J. Pharmacol.
J. Agric. Chem. Soc. Japan
J. Agric. Food Chem.
J. Amer. Ceram. Soc.
J. Amer. Chem. Soc.
J. Amer. Leather Chemists' Assoc.
J. Amer. Oil Chemists' Soc.
J. Analyt. Chem. (U.S.S.R.)
J. Appl. Chem.
J. Appl. Chem. (U.S.S.R.)
J. Appl. Cryst.
J. Appl. Phys.
J. Appl. Polymer Sci.
J. Assoc. Offic. Analyt. Chemists
J. Assoc. Public Analysts
J. Biochem. (Japan)
J. Biol. Chem.
J. Catalysis
J. Chem. Documentation

J. Chem. Educ.
J. Chem. and Eng. Data
J. Chem. Phys.
J. Chem. Soc. (A)
J. Chem. Soc. (B)
J. Chem. Soc. (C)
J. Chem. Soc. Japan
J. Chem. Soc. Japan, Ind. Chem. Sect.
J. Chem. U.A.R.
J. Chim. phys.
J. Chinese Chem. Soc. (Formosa)
J. Chromatog.
J. Colloid Interface Sci.
J. Econ. Entomol.
J. Electroanalyt. Chem. Interfacial Electrochem.
J. Electrochem. Soc.
J. Electrochem. Soc. Japan
J. Fac. Sci. Univ., Tokyo
J. Food Sci.
J. Franklin Inst.
J. Gas Chromatog.
J. Gen. Chem. (U.S.S.R.)
J. Heterocyclic Chem.
J. Histochem. Cytochem.
J. Indian Chem. Soc.
J. Indian Inst. Sci.
J. Inorg. Nuclear Chem.
J. Inst. Brewing
J. Inst. Chemists (India)
J. Inst. Fuel
J. Inst. Petroleum
J. Inst. Rubber Ind.
J. Karnatak Univ.
J. Korean Chem. Soc.
J. Labelled Compounds
J. Less-Common Metals
J. Lipid Res.
J. Macromol. Sci.
J. Mass Spectrometry Ion Phys.
J. Materials
J. Medicin. Chem.
J. Mol. Biol.
J. Mol. Spectroscopy
J. Mol. Structure
J. Natural Sci. Math., Govt. Coll., Lahore
J. Neurochem.
J. New Zealand Inst. Chem.
J. Nuclear Materials
J. Oil Colour Chemists' Assoc.
J. Opt. Soc. Amer.
J. Org. Chem.
J. Org. Chem. (U.S.S.R.)
J. Organometallic Chem.
J. Pharm. Pharmacol.
J. Pharm. Sci.
J. Pharm. Soc. Japan
J. Pharmacol.
J. Phys. (A)
J. Phys. (B)
J. Phys. (C)
J. Phys. (E)
J. Phys. and Chem. Solids
J. Phys. Chem.
J. Phys. Soc. Japan
J. Polarog. Soc.
J. Polymer Sci., Part A-1, Polymer Chem.
J. Polymer Sci., Part A-2, Polymer Phys.
J. Polymer Sci., Part B, Polymer Letters
J. Polymer Sci., Part C, Polymer Symposia
J. prakt. Chem.
J. Proc. Roy. Soc. New South Wales
J. Quant. Spectroscopy Radiative Transfer
J. Radioanalyt. Chem.
J. Res. Inst. Catalysis, Hokkaido Univ.
J. Res. Nat. Bur. Stand., Sect. A
J. S. African Chem. Inst.
J. Sci. Food Agric.
J. Sci. Hiroshima Univ.
J. Sci. Ind. Res., India
J. Sci. Instr.
J. Soc. Cosmetic Chemists
J. Soc. Dyers and Colourists
J. Soc. Leather Trades' Chemists
J. Struct. Chem.
J. Synthetic Org. Chem., Japan
J. Textile Inst.

Khim. geterotsikl. Soedinenii
Khim. i Ind.
Khim. i neft. Mashinostr.
Khim. prirod. Soedinenii
Khim. Prom.
Khim. Volokna
Khim. vysok. Energii
Kinetics and Catalysis (U.S.S.R.)
Kinetika i Kataliz
Kolloid-Z.
Kolloid. Zhur.
Kristallografiya
Kunst. Plastics

Lab. Practice
Lipids

Macromolecules
Macromol. Rev.
Macromol. Synth.
Magyar Kém. Folyóirat
Magyar Kém. Lapja
Makromol. Chem.
Manuf. Chemist
Mededel. vlaam. chem. Ver.
Mekh. Polimerov
Melliand Textilber.
Mem. Fac. Sci. Kyushu Univ.
Mem. Inst. Protein Res., Osaka Univ.
Mem. Inst. Sci. Ind. Res., Osaka Univ.
Mém. Poudres
Methods Biochem. Analysis
Microchem. J.
Mikrochim. Acta
Milt. deut. pharm. Ges.
Mol. Crystals
Mol. Phys.
Monatsh.

Nachr. Akad. Wiss. Göttingen, Math.-phys. Kl.
Nahrung
Nature
Naturwiss.
Neftekhimiya

Orbital
Osterr. Chem.-Ztg.
Optics and Spectroscopy
Org. Analysis
Org. Mass Spectrometry
Org. Photochem.
Org. Reaction Mech.
Org. Reactions
Org. Synth.
Organometallic Chem. Rev.
Organometallic Synth.
Oxidation and Combustion Rev.

Paint Manuf.
Paint Technol.
Pakistan J. Sci.
Pakistan J. Sci. Ind. Res.
Pakistan J. Sci. Res.
Parfümerie u. Kosmetik
Perfumery Essent. Oil Record
Periodica Polytech.
Perspectives in Structural Chem.
Pharm. Acta Helv.
Pharm. J.
Pharm. Weekblad
Pharm. Zentralhalle
Phil. Mag.
Phil. Trans.
Photochem. and Photobiol.
Photoelectric Spectromet. Group Bull.
Phys. and Chem. Earth
Phys. and Chem. Glasses
Phys. Rev.
Phys. Rev. Letters
Physica
Phytochemistry
Plastics and Polymers
Polymer
Polymer Sci. (U.S.S.R.)
Postepy Biochem.
Priklad. Biokhim. i Mikrobiol.
Proc. Acad. Sci. (U.S.S.R.)
Proc. Amer. Soc. Brewing Chemists
Proc. Brit. Ceram. Soc.
Proc. Cambridge Phil. Soc.
Proc. Indian Acad. Sci.
Proc. Japan Acad.
Proc., k. ned. Akad. Wetenschap
Proc. Nat. Acad. Sci., India
Proc. Nat. Acad. Sci. U.S.A.
Proc. Phys. Soc.
Proc. Roy. Soc.
Proc. Roy. Soc. Edinburgh
Proc. Soc. Exp. Biol. Med.
Proc. Soil Sci. Soc. Amer.
Process Biochem.
Progr. Biophys. Mol. Biol.
Progr. Boron Chem.
Progr. Chem. and Chem. Ind.
Progr. Chem. Fats and Lipids
Progr. Inorg. Chem.
Progr. N.M.R. Spectroscopy
Progr. Nucleic Acid Res.
Progr. Org. Chem.
Progr. Phys. Org. Chem.
Progr. Polymer Sci.
Progr. Reaction Kinetics
Progr. Solid-State Chem.
Progr. Stereochem.
Przemysl Chem.
Pure Appl. Chem.
Pyrethrum Post

Quart. Reports Sulphur Chem.
Quart. Rev.
Quimica e Industria

Radiation Res.
Radiochim. Acta.
Radiokhimiya
Reakts. spos. org. Soedinenii
Rec. Chem. Progr.
Rec. Trav. chim.
Recent Developments Chem. Natural Carbon Compounds
Recent Progr. Hormone Res.
Recent Progr. Surface Sci.
Recherches
Rend. Accad. Sci. fis. mat. (Napoli)
Reports Govt. Chem. Ind. Res. Inst., Tokyo
Reports Inst. Phys. Chem. Res (Japan)
Reports Progr. Phys.
Residue Rev.
Rev. Asoc. bioquím. argentina
Rev. Chim. (Roumania)
Rev. Chim. minérale
Rev. Fac. Cienc. quím., Univ. nac. La Plata
Rev. Fac. Farm. Bioquím., Univ. nac. mayor San Marcos
Rev. Fac. Sci. Univ. Istanbul Ser. C
Rev. Mod. Phys.
Rev. Phys. Chem. Japan
Rev. Port. Quím.
Rev. Prod. chim.
Rev. Pure Appl. Chem. (Australia)
Rev. Roumaine Biochim.
Rev. Roumaine Chim.
Rev. Sci. Instr.
Rev. Soc. quím. Mexico
Rev. Univ. ind. Santander Colombia
Ricerca sci.
Roczniki Chem.
Roy. Inst. Chem., Lecture Series
Roy. Inst. Chem. Rev.
Rubber Chem. Technol.
Rubber Plastics Age
Russ. Chem. Rev.
Russ. J. Inorg. Chem.
Russ. J. Phys. Chem.

Safybi
Sbornik Prác Chem. Fak. S.V.Š.T.
Schweiz. Apoth.-Ztg.
Sci. Papers Coll. Gen. Educ., Univ. Tokyo
Sci. Papers Univ. Chem. Technol., Pardubice
Sci. Papers Inst. Phys. Chem. Res., Tokyo
Sci. Proc. Royal Dublin Soc.
Sci. Reports Res. Inst., Tôhoku Univ.
Sci. Reports Tôhoku Univ.
Science
Science and Culture
Separation Sci.
Soap
Soc. Sci. Fennica, Commentationes Phys.-Math.
Soc. Sci. Lodz. Acta Chim.
Soil Sci.
Soviet Phys. Cryst.
Spectochim. Acta
Sperimentale
Stärke
Stain Technol.
Standard Methods Clin. Chem.
Steroids
Structure and Bonding
Studia Univ. Babes-Bolyai, Ser. Chem.
Suomen Kem.
Surface Sci.
Svensk kem. Tidskr.
Svensk Papperstidn.
Synthetic Methods Org. Chem.

Talanta
Technol. Reports Osaka Univ.
Technol. Reports Tôhoku Univ.
Teor. i eksp. Khim.
Teor. Osnovy khim. Tekhnol.
Tetrahedron
Tetrahedron Letters
Textile Inst. and Ind.
Textile Res. J.
Theor. and Exp. Chem.
Theor. Chim. Acta
Tidsskr. Kjemi Bergvsen Md. (Kjemi)
Topics Stereochem.
Trans. Brit. Ceram. Soc.
Trans. Chalmers Univ. Technol., Gothenburg
Trans. Faraday Soc.
Trans. Inst. Chem. Engineers
Trans. Inst. Metal Finishing
Trans. J. Plastics Inst.
Trans. Roy. Soc. Canada
Transition Metal Chem.
Trudy Inst. Elektrokhim. Akad. Nauk S.S.S.R., Ural'skii Filial
Trudy Inst. khim. Akad. Nauk Azerb. S.S.R.
Trudy Inst. khim. Nauk, Akad. Nauk Kazakh. S.S.R.
Trudy Khim. i khim. Tekhnol.
Trudy Kom. analit. Khim., Akad. Nauk S.S.S.R.

Ukrain. biokhim. Zhur.
Ukrain. khim. Zhur.
Uspekhi Khim.
Uzbek. khim. Zhur.

Verhandel. k. ned. Akad. Wetenschap., Afd. Natuurk.
Vestnik Leningrad. Univ. (Fiz. Khim.)
Vestnik Moskov. Univ.
Vestnik Slovensk. kem. Drustva
Veszpremi Vegyi. Egyetem Köz.
Vitamins and Hormones
Voprosy med. Khim.
Vysokomol. Soedineniya

Wallerstein Lab. Comm.
Wiss. Z. tech. Hochschule Chem. Leuna Merseburg

Zavodskaya Lab.
Z. analyt. Chem.
Z. anorg. Chem.
Z. Chem.
Z. Krist.
Z. Lebensm.-Untersuch.
Z. Naturforsch.
Z. phys. Chem. (Frankfurt)
Z. phys. Chem. (Leipzig)
Z. Physik
Z. physiol. Chem.
Z. Vitamin-, Hormon-, u. Ferment-forsch.
Z. wiss. Phot.
Zeszyty Nauk., Mat., Fiz., Chem.
Zeszyty Nauk. Politech. lodz. (Chem.)
Zhur. analit. Khim.
Zhur. eksp. teor. Fiz.
Zhur. E.T.F. Letters
Zhur. evol. Biokhim. i Fiziol.
Zhur. fiz. Khim.
Zhur. nauch. priklad. Fotograf. Kinemat.
Zhur. neorg. Khim.
Zhur. obshchei Khim.
Zhur. org. Khim.
Zhur. priklad. Khim.
Zhur. priklad. Spektroskopii
Zhur. strukt. Khim.
Zhur. Vsesoyuz. Khim. obshch. im. D. I Mendeleeva

NOTICES TO AUTHORS—No. 5/1969

The International System of Units (SI)

Preamble

For many years the practice of The Society in respect of units has been based on the recommendations of a joint Committee of The Royal Society, The Chemical Society, The Faraday Society, and The Physical Society. The 1951 set of recommendations published by that Committee formed the basis of Chapter 7 of the ' Handbook for Chemical Society Authors ' but since their promulgation much effort has been expended in international circles to devise and approve a basic set of coherent units. This having been completed, The Joint Symbols Committee of The Royal Society, of which The Chemical Society is a participating member, has produced a completely new set of recommendations in a pamphlet ' Symbols, Signs and Abbreviations ' 1969 (copies of this pamphlet or further details can be obtained from the Managing Editor, The Chemical Society, Burlington House, London, W1V OBN). The basis of the new recommendations is the ' Système International d'Unités ' (to be abbreviated to SI, in all languages).

The advantages offered by SI are as follows.

(i) It is a truly coherent system, *i.e.* the product or quotient of any two unit quantities in the system is the unit of the resultant quantity. This contrasts with the previous situation where, even in metric systems used within the same discipline, many additional units are arbitrarily and sometimes differently defined.

(ii) SI derives nearly all the quantities needed in all sciences and technologies from a very small set of base-units.

(iii) The variety of multiples and sub-multiples in common use is minimized.

(iv) A more uniform presentation can be ensured.

(v) Presentation is such that the relation of any derived unit, or multiple or sub-multiple of a derived unit, to the coherent unit is always obvious and simple.

Policy

(1) The Society announces its approval and support of SI, and its intention that SI shall become the preferred system in its publications.

(2) *Guidelines for the publications of the Society.* The Society realises that public acceptance of this system will be more a matter of education and tolerance than of dictatorial action. It nevertheless desires that the SI system and units compatible with it shall *rapidly* become the established standard in the Society's publications. An author will not be denied any reasonable usage, but if non-SI units are used for critical data or for quantities measured to a high order of accuracy (as opposed to the rough physical conditions of an experiment), the definitive values will be expressed in SI units as well.

The following will be the guidelines used:

(*a*) A metric system will always be used in preference to a non-metric one.

(*b*) The SI system will be the standard usage.

(*c*) The units used to record the *definitive* values of ' critical data ' or quantities measured to high degree of accuracy will be of the SI system.

(*d*) When non-SI units are used they must be adequately explained unless their definition is obvious (*e.g.* degree Celsius, mmHg, g, h). The derivation of derived non-SI units will be indicated.

(*e*) Equations involving electrical quantities should normally be those appropriate for use with SI (rationalized m.k.s) units. If authors wish to use equations suitable for e.s.u. or e.m.u. the lack of consistency with SI units must be explicitly noted.

(3) *The principal changes.* There are four of these:

(*a*) Basic units: the metre and the kilogramme replace the centimetre and the gramme of the old metric system.

(*b*) The unit of force is now the newton (kg m s^{-2}).

(*c*) The unit of energy is the joule and of power the joule per second (watt); thus the variously defined calories and non-metric units of energy and power are superseded.

(*d*) ' Electrostatic ' and electromagnetic ' units are replaced by SI electrical units.

Detail

(4) *Definition.* A quantity is expressed as the product of a numerical value and a unit.

(5) *The System.* The fully coherent SI consists of base-units, supplementary units, derived units, and decimal multiples and sub-multiples of these units, formed by use of prefixes only.

(6) *Coherent systems.* A coherent system is one based on a selected set of ' base-units ' from which ' derived units ' are obtained by multiplication without introducing numerical factors.

(7) *Base-units.* The name International System of Units (SI) was adopted by the Conférence Générale de Poids et Mesures in 1960 for the coherent system now based on the base-units given in Table 1.

TABLE 1

Physical quantity	*Name of base-unit*	*Symbol for unit*
length	metre	m
mass	kilogramme	kg
time	second	s
electrical current	ampere	A
thermodynamic temperature	kelvin	K
luminous intensity	candela	cd
amount of substance	mole	mol

(8) *Supplementary units.* The SI also includes two ' supplementary ' *dimensionless* units as follows:

Physical quantity	*Name of unit*	*Symbol for unit*
plane angle	radian	rad
solid angle	steradian	sr

(9) *Multiples and sub-multiples.* In the SI there is one and only one basic unit for each physical quantity. Decimal fractions and multiples of these basic units may, however, be constructed by use of certain prefixes (see Table 2). They may also be used with derived SI units.

TABLE 2

Fraction	*Prefix*	*Symbol*	*Multiple*	*Prefix*	*Symbol*
10^{-1}	deci	d	10	deka	da
10^{-2}	centi	c	10^{2}	hecto	h
10^{-3}	milli	m	10^{3}	kilo	k
10^{-6}	micro	μ	10^{6}	mega	M
10^{-9}	nano	n	10^{9}	giga	G
10^{-12}	pico	p	10^{12}	tera	T
10^{-15}	femto	f			
10^{-18}	atto	a			

The combination of a prefix and a unit symbol constitutes a new single unit symbol; compounding of prefixes is not permitted.

Although it will not always be possible, particularly in Tables, the general principle should be to choose a unit (*i.e.* including multiple or sub-multiple) such that the resulting numerical value is between 0·1 and 1000.

(10) *Derived units.* Some derived units have special names and symbols, and these are given in Table 3.

TABLE 3

Physical quantity	*Name of SI unit*	*Symbol for SI unit*	*Definition of SI unit*
energy	joule	J	$kg\ m^2\ s^{-2}$
force	newton	N	$kg\ m\ s^{-2} = J\ m^{-1}$
power	watt	W	$kg\ m^2\ s^{-3} = J\ s^{-1}$
electric charge	coulomb	C	$A\ s$
electric potential difference	volt	V	$kg\ m^2\ s^{-3} A^{-1} = J A^{-1} s^{-1}$
electric resistance	ohm	Ω	$kg\ m^2\ s^{-3} A^{-2} = V A^{-1}$
electric capacitance	farad	F	$A^2\ s^4\ kg^{-1}\ m^{-2} = As\ V^{-1}$
magnetic flux	weber	Wb	$kg\ m^2\ s^{-2} A^{-1} = V\ s$
inductance	henry	H	$kg\ m^2\ s^{-2} A^{-2} = V A^{-1}\ s$
magnetic flux density	tesla	T	$kg\ s^{-2} A^{-1} = V\ s\ m^{-2}$
luminous flux	lumen	lm	$cd\ sr$
illumination	lux	lx	$cd\ sr\ m^{-2}$
frequency	hertz	Hz	s^{-1}

Others do not

Physical quantity	*SI unit*	*Symbol for SI unit*
area	square metre	m^2
volume	cubic metre	m^3
density	kilogramme per cubic metre	$kg\ m^{-3}$
velocity	metre per second	$m\ s^{-1}$
angular velocity	radian per second	$rad\ s^{-1}$
acceleration	metre per second squared	$m\ s^{-2}$
pressure	newton per square metre	$N\ m^{-2}$
kinematic viscosity, diffusion coefficient	square metre per second	$m^2\ s^{-1}$
dynamic viscosity	newton second per square metre	$N\ s\ m^{-2}$
electric field strength	volt per metre	$V m^{-1}$
magnetic field strength	ampere per metre	$A\ m^{-1}$
luminance	candela per square metre	$cd\ m^{-2}$

(11) *Symbol.* The symbol for a unit will be printed in roman (upright) type, remains unaltered in the plural and does *not* take a full point, *i.e.* 5 cm not 5 cm. or 5 cms or 5 cms.

The symbol will be separated from the numerical value by a thin space.

(12) *Decimal fractions and multiples of SI units having special names.* These names are not part of the SI, but for the time being their use in The Society's publications may continue. The list given in Table 4 is not exhaustive.

TABLE 4

Physical quantity	*Name of unit*	*Symbol unit*	*Definition of unit*
length	ångström	Å	$10^{-10}\ m = 10^{-1}\ nm$
length	micron	μm	$10^{-6}\ m$
area	barn	b	$10^{-28}\ m^2$
volume	litre	l	$10^{-3}\ m^3 = dm^3$
mass	tonne	t	$10^{3}\ kg = Mg$
force	dyne	dyn	$10^{-5}\ N$
pressure	bar	bar	$10^{5}\ N\ m^{-2}$
pressure	pascal	Pa	Nm^{-2}
energy	erg	erg	$10^{-7}\ J$
kinematic viscosity diffusion coefficient	stokes	St	$10^{-4}\ m^2\ s^{-1}$
dynamic viscosity	poise	P	$10^{-1}\ kg\ m^{-1}\ s^{-1}$
magnetic flux	maxwell	Mx	$10^{-8}\ Wb$
magnetic flux density (magnetic induction)	gauss	G	$10^{-4}\ T$
conductance	siemens	S	Ω^{-1}

(13) *Units defined in terms of the best available experimental values of certain physical constants.* These units are not part of the SI. The factors for conversion of these units to SI units are subject to change in the light of new experimental measurements of the constants involved. Their use outside the restricted contexts to which they are appropriate should be discouraged. The following list is not exhaustive.

Physical quantity	*Name of unit*	*Symbol for unit*	*Conversion factor*
energy	electronvolt	eV	$eV \approx 1{\cdot}6021 \times 10^{-19}\ J$
mass	unified atomic mass unit	u	$u \approx 1{\cdot}660\,41 \times 10^{-27}\ kg$

(14) *Other units now exactly defined in terms of the SI units.* These units are not part of the SI. It is recognized that their use may be continued for some time but it is recommended that except in special circumstances they should be progressively abandoned in conformity with international recommendations. The list given in Table 5 is by no means exhaustive. Each of the definitions given in the fourth column is *exact.*

TABLE 5

Physical quantity	*Name of unit*	*Symbol for unit*	*Definition of unit*
length	inch	in	$2{\cdot}54 \times 10^{-2}\ m$
mass	pound (avoirdupois)	lb	0·453 592 37 kg
time •	minute	min	60 s
time •	hour	h	3600 s
force	kilogramme-force	kgf	9·806 65 N
force	pound-force	lbf	$9{\cdot}806\,65 \times 0{\cdot}453\,592\,37\ N$
pressure	atmosphere	atm	$101\,325\ N\ m^2$
pressure	conventional millimetre of mercury	mmHg	$13{\cdot}5951 \times 9{\cdot}806\,65\ N\ m^{-2}$
pressure	torr	Torr	$(101\,325/760)\ N\ m^{-2}$
pressure	pound-force per square inch	$lbf\ in^{-2}$	$\frac{9{\cdot}806\,65 \times 4535{\cdot}9237}{6{\cdot}4516}\ N\ m^{-2}$
energy	kilowatt hour	kW h	$3{\cdot}6 \times 10^{6}\ J$
energy	thermochemical calorie	cal(thermochem.)	4·184 J
energy	I.T. calorie	cal_{IT}	4·1868 J
thermodynamic temperature	degree Rankine	°R	(5/9) K
radioactivity	curie	Ci	$3{\cdot}7 \times 10^{10}\ s^{-1}$

• Use of other common units (min, h, day) may continue in normal expressions of intervals of time.

NOTICE TO AUTHORS—No. 6/1969

Formulae and Figures

The purpose of all illustrative matter in a paper is to clarify the arguments and descriptions rather than to duplicate them. The Society strongly encourages the use of displayed formulae, particularly in the form of schemes where the details of a reaction sequence are often more easily understood when illustrated than when described in the text.

All formulae and figures should be clearly drawn, and in the case of figures provided with captions; the latter should be typed on a separate sheet. Since all formulae carry a key number by which they are identified, unless they form part of the running text or unless they are part of a scheme which itself has a caption, they are not generally further described. Blocks of formulae do not need a caption.

Illustrative matter is divided, for technical reasons, into figures and formulae, although in many cases (*e.g.* crystal structures which may be regarded as formulae but which are treated as figures) these divisions overlap.

Structural Formulae.—(*a*) Only those formulae which are displayed may be given key numbers. In all other cases the compounds concerned are referred to by name only.

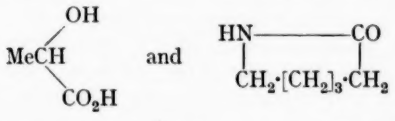
(*b*) Formulae are numbered sequentially with bold arabic numerals in parentheses [(**1**), (**2**), and (**3**) *etc.*] as they are displayed and *not* as they are mentioned in the text.

(*c*) In complex reaction schemes the formulae should be numbered serially following the reaction sequence. Non-sequential numbering in a collection of formulae can render it hard to locate an individual number.

(*d*) Structural or displayed formulae must be carefully and accurately drawn or typed on a separate sheet, rather than inserted into the text, although a marginal indication of where they are to go in the text is desirable.

(*e*) Formulae inserted into the body of the text (as distinct from those displayed separately) should be written on one line if possible, *e.g.*

$HO{\cdot}CHMe{\cdot}CO_2H$ and $\overline{NH{\cdot}[CH_2]_5{\cdot}CO}$ rather than



and

(*f*) Points (which may be typed as full stops) are used to indicate bonds between the atoms of the backbone chain of a compound. The symbol of each element of that chain is preceded by a full stop (or colon for a double bond) and followed by the symbols or formulae of the atoms or groups that are attached to it (parentheses being used where necessary to enclose compound groups), *e.g.* *o*-$HO{\cdot}C_6H_4{\cdot}CH_2{\cdot}NH_2$ and $CH_2Cl{\cdot}CH(OH){\cdot}CO_2H$.

Groups that are indicated by a single symbol (*e.g.* Me and Et *etc.*) do not need use of such full stops.

Repeating sequences of a backbone composite group are enclosed with square brackets and their number is indicated by an inferior multiplier, *e.g.* $HO{\cdot}[CH_2]_4{\cdot}NH_2$, but $HO{\cdot}[CH_2]_4{\cdot}N(CH_2{\cdot}OH)_2$.

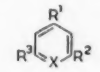
(*g*) The use of large circles to represent six delocalized π-electrons in cyclic systems (with or without positive or negative signs as appropriate) is permitted in certain circumstances. Cyclic systems with more or less than six delocalized π-electrons may be represented by formulae containing dotted lines. Both topics are dealt with in *Proceedings*, 1959, 75.

(*h*) Customary steric conventions must be observed, notably for steroids, triterpenes, and carbohydrates. The Society uses wedges (◢) or heavy lines (—) rather than blocked circles (●) and broken lines in the form – – – – – rather than ⁞||.

(*i*) The symbols Me, Et, Pr^n, Pr^i, Bu^n, Bu^i, Bu^s, Bu^t, Ph, Ac, Bz (the symbol for PhCO and not for $PhCH_2$), Alk, Ar, and Hal, should be used but may be written in full when the groups are involved in the reaction described. Other special symbols, if used, require an explanatory footnote. The carboxy-group is written CO_2H (*not* COOH) and similarly CO_2R.

(*j*) One variable univalent substituent is indicated by R; when more than one independently variable general substituent is present, R^1, R^2, and R^3 should be used (*not* R, R^1, R^2, R^3; or R_1, R_2, and R_3 which indicate 1 × R and multiples of R thereof).

(*k*) Often it is desirable to use one formula to represent a number of related compounds (or classes of compounds) by the use of one or more independently variable substituents. It is preferable to give each compound thus represented a separate key number rather than to subdivide individual key numbers by alphabetical suffixes [*i.e.* (**1**a), (**1**b), (**1**c) *etc.*].

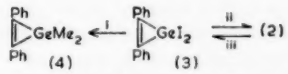


(**1**) $R^1 = R^2 = Ph$, $R^3 = Me$, X = O
(**2**) $R^1 = Me$, $R^2 = R^3 = Ph$, X = S

(**3**) $R^1 = Me$, $R^2 = Ph$, $R^3 = Bz$
(**4**) $R^1R^2 = CO{\cdot}O{\cdot}CO$, $R^3 = Ph$

The use of more than four independently variable substituents or atoms on one generalized formula is discouraged.

(*l*) Once a formula has been displayed it is permissible to employ its key number in later reaction schemes or equations rather than to re-display the formula:



Reagents: i, MeMgI; ii, NaOH; iii, HI

It should be noted that reagents and reaction conditions are given as footnotes to the scheme for economy of space; if present, an equation number is set as far to the right as possible, and if there is likelihood of

confusion with compound key-numbers it is accompanied by the word equation.

(*m*) Displayed formulae, unless they are capable of being typed on one line [see point (*e*) above], should not be included in tables; they should be displayed before the table with a key number for each compound and this should be used in the table.

(*n*) The key number for a compound may be used in the cursive text to avoid repetition of long chemical names; this device must not be used to excess. In general it is preferred if the key number is qualified by a partial name for the compound as in the following example:

'Pyolin (**1**) was oxidized by permanganate to the oxo-acid (**2**), the methyl ester (**3**) of which with methylmagnesium iodide gave the normal product (**4**)'.

(*o*) Reference to compounds in the Summary by key number alone is not allowed since a summary should be comprehensible without reference to the body of the paper itself. The reference number should, however, accompany the name of the compound to which it refers.

Figures.—(*a*) Figures must bear on the back the names of the authors, the title of the paper (abbreviated if necessary), and the number of the figure.

(*b*) Figures must be in Indian ink, on Bristol board, white smooth cartridge paper, tracing linen, plastic film (it is essential that the special plastic ink developed for this is used), or graph paper with *faint* blue lines (red or brown lines must not be present as these may be reproduced by the photographic process of block making). Since lines must be black and sharp, photostats or similar prints are often not suitable. If paper is used, it must be strong enough to withstand repeated handling.

(*c*) Lettering and numerals must be in *blue pencil* (*not* red or black pencil or ink) clearly legible but not so heavily scored as to make a permanent impression on the paper or board.

(*d*) When the figures are large (more than 8 in $\times$ 10 in), smaller copies (which may be rough, as long as they are clear) should be supplied for submission to the referees; editing will not be undertaken, however, before the final figures are received.

(*e*) Figures must be carefully drawn, preferably three times the size (linear) that seems necessary to ensure sharp printing, but excessive reduction is costly and illustrations that exceed five times the size of the finished block may be returned to the author for redrawing.

(*f*) Two-inch margins are essential all round figures. Lettering for insertion at margins should be placed well clear of the ordinate or abscissa line so that it can be copied before erasure.

Lettering and touching-up are done by the Society and clarity of instructions is essential. When there is much lettering, or complicated lettering, and always when tracing linen or plastic film is used, a rough tracing should be added with the lettering shown in ink.

(*g*) Since, for printing, the size is reduced, lines should not be too thin. Given lines must be of even thickness, angles neat, and curves smooth.

(*h*) Graphs should have only the requisite minimum of the scale (not less than three points) marked by numerals, and the scale lines should not normally be continued into the body of the figure.

(*i*) Graphs in any one paper should, when convenient, be drawn to the same scale, and scale markings should, when possible, be identical so that the graphs may be placed adjacent on the page. Contrariwise, two curves drawn to different scales can be shown on one graph by having the appropriate scales on the left-hand and the right-hand side. The use of both right- and left-hand axes and top and bottom axes on figures which have quantitative significance is encouraged.

(*j*) Experimental points must be shown sufficiently large to be distinguishable when reduced in size. Whenever possible, they should be confined to open and closed circles, crosses, squares, and triangles. Partly black circles and similar signs frequently become indistinguishable in print.

(*k*) Curves may be distinguished as full lines (——), broken (– – – –) or dotted lines (· · · ·), and dot-dash lines (— · — · —); further differentiation should normally be achieved by labelling the curves, which is, in any case, desirable.

(*l*) For reference in legends, it is preferable to mark curves A, B, C, *etc.* rather than to reproduce the type of line in print.

(*m*) There must be no unnecessary waste space, *e.g.* around curves; ordinates and abscissae should start at zero only if the curve extends to that range. Enlargement of parts of a figure can occasionally be placed in a corner of the complete figure.

(*n*) It is not advisable to insert much or complicated lettering on curves or in blank spaces; mistakes (in copying by the artist) can rarely be rectified once the block is made. It is better to label the curves A, B, C, *etc.* and to use explanatory legends.

(*o*) *Large* solid objects should be represented by hatching rather than by black surfaces, otherwise the ink may smear on printing.

(*p*) Photographs are reproduced by a half-tone process on art paper. The prints supplied must be very clear and of good contrast, as considerable definition may be lost in reproduction.

(*q*) Captions and explanatory legends, to be set by the printer should be typed on a separate page attached to the manuscript, and not given on the figure itself.

(*r*) Figures are numbered consecutively Figure 1, Figure 2, *etc.* (in arabic numerals). Photographs (half-tone reproduction) are numbered consecutively Plate 1, Plate 2, *etc.* but these numbers are independent of the numbering of any figures.

(*s*) Since figures represent an uneconomical use of space their number and size should be kept to a minimum. Figures and tables for the same values are discouraged.

NOTICES TO AUTHORS—No. 7/1970

Deposition of Data—Supplementary Publications Scheme

Preamble

The growing volume of research that produces large quantities of data, the increasing facilities for analysing such data mechanically, and the rising cost of printing are each making it very difficult to publish in the *Journal* in the normal way the full details of the experimental data which become available. Moreover, whilst there is a large audience for the general method and conclusions of a research project, the number of scientists interested in the details, and in particular in the data, of any particular case may be quite small. The National Lending Library (N.L.L.) in consultation with the Editors of scientific journals, has now developed a scheme whereby such data and detail may be stored and then copies made available on request at the N.L.L., Boston Spa. The Chemical Society is a sponsor of this scheme and has indicated to the National Lending Library its wish to use the facilities being made available in this ' Supplementary Publications Scheme '.

Bulk information (such as crystallographic structure factor tables, computer programmes and output, evidence for amino-acid sequences, spectra, *etc.*), which accompany papers published in future issues of the Chemical Society's *Journal* may in future be deposited, free of charge, with the Supplementary Publications Scheme, either at the request of the author and with the approval of the referees or on the recommendation of referees and the approval of the author.

The Scheme

Under this scheme, authors will submit articles and the supplementary material to the Journal simultaneously in the normal way, and both will be refereed. If the paper is accepted for publication the supplementary material will be sent by the Society to the National Lending Library where it will be stored on microfiche. Microfiche and enlarged copies will be obtainable by individuals both in the U.K. and abroad on quoting a supplementary publication number that will appear in the parent article. Difficult or oversized material may only be available as 35 mm microfilm or enlarged copies.

The Microfiche

A single microfiche will accommodate 58 pages in microform, plus an eye-visible title; additional pages are accommodated on numbered ' trailer ' fiches, each holding 69 pages. The eye-visible title on the first microfiche will comprise the supplementary publication number (see below), the authors' names, and the bibliographic reference to the parent article which the microfiche supplements.

Authors will be responsible for the preparation of camera-ready copy according to the following specifications (although the Society will be prepared to help in case of difficulty).

(*a*) Optimum page size for text or tables in typescript: up to 30 cm × 21 cm.
(*b*) Limiting page size for text or tables in typescript: 33 cm × 24 cm.
(*c*) Limiting size for diagrams, graphs, spectra, *etc.*: 39 cm × 28·5 cm.
(*d*) Tabular matter should be headed descriptively on the first page, with column headings recurring on each page.
(*e*) Pages should be clearly numbered to ensure the correct sequence of frames on the microfiche.

It is recommended that all material which is to be deposited should be accompanied by some prefatory text. Normally this will be the summary from the parent paper and authors will greatly aid the deposition of the material if a duplicate copy of the summary is provided. If authors have the facilities available the use of a type face designed to be read by computers is encouraged.

Deposition

The Society will be responsible for the deposition of the material with the National Lending Library. The N.L.L. will not receive material direct from authors since the Library wishes to ensure that the material has been properly and adequately refereed.

Action by the Society

The Society will receive a manuscript for publication together with any supplementary material for deposition and will circulate all of this to referees in the normal way. When the edited manuscript is sent to the printers the supplementary material will be sent for deposition to the National Lending Library who will issue the necessary publication number. The Society will add to the paper, at the galley proof stage, a footnote indicating what material has been deposited in the Supplementary Publications Scheme, the number of microfiches it occupies, the supplementary publication number, and details as to how copies may be obtained.

Availability

This supplementary material will be available either as microfiche or as a photographic enlargement, from the National Lending Library's photocopying service. This works on a prepaid, flat rate, coupon basis.

The present coupon purchases one or two microfiches of the same item, or 1—10 pages of enlargement from the same item (or, where appropriate, 1—20 pages from the same item on 35 mm microfilm). The present coupon costs are:

United Kingdom	£10 for 50 coupons (or 25 new p each)
Europe, excluding U.K.	£6 for 20 coupons (or 30 new p each)
Elsewhere	£8·50 for 20 coupons (or 42½ new p each)

The cost includes postage; outside the U.K. all items are sent by airmail.

It is realised that not all users will want to purchase 50 coupons at a time. The Society is therefore prepared to act as agent and hold coupons which may then be purchased from the Society at the prices quoted above.

In all correspondence with the National Lending Library or the Society authors must cite the supplementary publications number.

International Collaboration

A similar scheme (known as the National Auxiliary Publications Service) is being operated in the U.S.A. by the American Society for Information Science. Similar schemes are also being contemplated in other countries. The provision of reciprocal arrangements for the exchange of supplementary data between the various national deposition centres is being investigated.

NOTICES TO AUTHORS—No. 8/1970

X-Ray Crystallographic Structure Factor Tables

The Society has recently taken advice from the members of its Chemical Crystallography Group and as a result of this and of the inception of the National Lending Library Supplementary Publications Scheme (discussed in Notices to Authors No. 7) the following rules are being taken into use forthwith to govern the publication or deposition of *X*-ray crystallographic structure factor tables.

(i) The Society will no longer publish tables of structure factors in its publications except in accordance with the provision of paragraph (iv) below.

(ii) All authors of crystallography papers will submit along with the manuscript a readable table of such structure factors for the referees' inspection. The table should be prepared in accordance with the detail given in paragraph 3 of Notices to Authors No. 7 so that it may be used for deposition. Computer printout may be used providing that it is top copy in good contrast (see note).

(iii) If the referees accept the paper and its associated structure factor tables then the Society will deposit these structure factor tables in the National Lending Library Supplementary Publications Scheme (see Notices to Authors No. 7) and will publish as a footnote to the paper the necessary details that will enable any reader to obtain a copy in microfiche or an electrophotographic printoff of the data tables associated with the paper.

(iv) Authors, or the referees, may request publication of such tables of structure factors, *in extenso*, in cases that seem to them to be desirable. It is expected that this will occur only rarely.

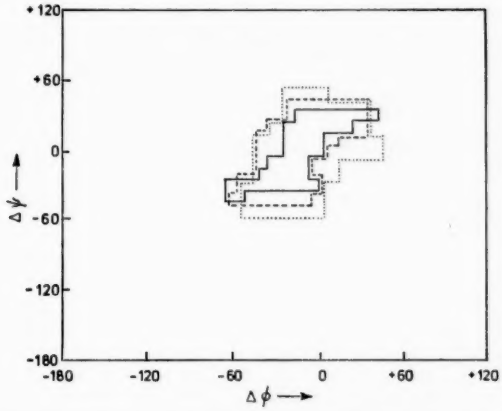
(v) The details of the National Lending Library Supplementary Publications Scheme and the methods for obtaining microfiche or photographic printoff of material deposited with that scheme are given in Notices to Authors No. 7.

Note to paragraph (*ii*). Structure factor tables prepared from computer printout must be presented in the form indicated in paragraph 3 of Notices to Authors No. 7 and must be arranged with the greatest economy of space possible [*i.e.* not less than two groups of columns (h, k, l, F_c, F_o) to the page (30 cm × 21 cm)]. All columns must be headed. A 'paste-up' on white card of computer printout will be acceptable providing the quality of the printout is adequate.

ERRATA

Section B

1971, page **471**, Figure 1. Please replace that printed by the one here.



Perkin II Transactions

1972, page **349**, Table 6. The designations of the last eight hydrogens in the first column are incorrect.

For	*read*
H(13,12)	H(13,18)
H(14,13)	H(14,18)
H(15,14)	H(15,19)
H(16,15)	H(16,19)
H(17,18)	H(17,12)
H(18,18)	H(18,13)
H(19,19)	H(19,14)
H(20,19)	H(20,15)

page **429**, left hand column, line 12 *. *For* (ϕ_{12} 26°, ϕ_{23} 18°) *read* (ϕ_{12} 24°, ϕ_{23} 19°).

page **1995**, Title. *For* P. Davey *read* D. Pavey.

page **2094**, Title. *After* '**Crystal Structure of**' *insert* **Dimethyl.**

page **2263**, Figure 1. *For* peak at 158 *m/e read* peak at 162 *m/e*.

* From foot of main text

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PERKIN TRANSACTIONS II
Physical Organic Chemistry

Part I, pp. 1—1290

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1972

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PERKIN TRANSACTIONS II
Physical Organic Chemistry

Part II, pp. 1291—2390,
Notices to Authors and indexes

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